Amendments to the Specification

In the Title:

Please amend the title to read as follows: MICROSCOPE LENS FOR TOTAL INTERNAL ~~REFLEXION~~ REFLECTION MICROSCOPY AND MICROSCOPE

In the Specification:

Before paragraph [0003] please insert the heading --BACKGROUND--.

Before paragraph [0012], please insert the heading --SUMMARY OF THE INVENTION--.

Please replace paragraph [0012] with the following rewritten paragraph:

[0012] ~~The~~ It is an object of the present invention ~~is based on the task of putting forward~~ to provide a microscope objective, especially for total internal reflection microscopy, that offers the possibility of a reliable, efficient and reproducible illumination of the specimen.

Please replace paragraph [0013] with the following rewritten paragraph:

[0013] ~~This task is achieved by means of~~ The present invention provides a microscope objective ~~that is characterized in that it has~~ having at least one optical fiber.

Please replace paragraph [0014] with the following rewritten paragraph:

[0014] ~~An additional task of the present invention is to put forward~~ It is also an object of the present invention to provide a microscope that offers the possibility of an efficient, reliable and reproducible illumination of the specimen, especially for total internal reflection microscopy.

Please replace paragraph [0015] with the following rewritten paragraph:

[0015] ~~This additional task is achieved by means of~~ The present invention also provides a

microscope ~~that is characterized in that it has~~ having at least one optical fiber.

Please replace paragraph [0016] with the following rewritten paragraph:

[0016] In ~~an especially~~ a preferred embodiment ~~variant~~ of the microscope objective, illumination light can be coupled directly into the microscope objective through the optical fiber. Preferably, at least part of the optical fiber – for instance, the outcoupling end – is mechanically attached in the microscope and/or to the microscope objective. In a particularly preferred variant, the outcoupling end is arranged in a plane (Fourier plane) that is conjugate to the focal plane of the microscope objective. This variant is especially well-suited to generate an evanescent illumination of the specimen. If the microscope objective comprises several planes (Fourier planes) conjugate to the focal plane, it is particularly advantageous to arrange the outcoupling end in the Fourier plane that is closest to the front lens.

Please replace paragraph [0018] with the following rewritten paragraph:

[0018] In a ~~particularly~~ preferred embodiment, the optical fiber has an incoupling end into which illumination light can be coupled.

Please replace paragraph [0021] with the following rewritten paragraph:

[0021] In ~~a particularly~~ preferred embodiment of the microscope according to the invention, at least one source of illumination light is provided that emits illumination light that can be coupled into the incoupling end of the optical fiber. Preferably, the incoupling end of the optical fiber is arranged in a plane that corresponds to the focal plane of the microscope objective (for example, the intermediate image plane).

Please replace paragraph [0022] with the following rewritten paragraph:

[0022] In ~~a special~~ an embodiment ~~variant~~, the microscope has a beam deflector with which the illumination light can be directed onto the incoupling end of the optical fiber. In this embodiment variant, the incoupling end of the optical fiber can lie, for example, somewhat outside of the

intermediate image field, so that the intermediate image is not disturbed by the presence of the optical fiber.

Please replace paragraph [0023] with the following rewritten paragraph:

[0023] In a ~~very particularly~~ preferred embodiment variant, the microscope is configured as a scanning microscope, especially as a confocal scanning microscope. In this variant, the illumination light that travels through the optical fiber can be employed especially for TIRF illumination. Here, it is especially advantageous that all of the illumination light wavelengths that are also available for classic confocal scanning microscopy can be utilized for the TIRF applications. Evanescent illumination of the specimen with illumination light having several wavelengths can also be simultaneously realized. A quick switchover between evanescent specimen illumination and a scanning illumination of the specimen can be achieved virtually as quickly as desired since the beam deflector of a scanning microscope works very rapidly.

Before paragraph [0026], please insert the heading --BRIEF DESCRIPTION OF THE DRAWINGS--.

Please replace paragraph [0026] with the following rewritten paragraph:

[0026] ~~The drawing schematically shows the subject matter of the invention, which will be described below with reference to the figures~~ Exemplary embodiments of the present invention are schematically illustrated in the drawings and will be described below with reference to the drawings; elements that function in the same manner are designated with the same reference numerals. The following is shown:

Figure 1 – a scanning microscope according to the invention, with a microscope objective according to the invention;

Figure 2 – another microscope with a microscope objective according to the invention.

Before paragraph [0027], please insert the heading --DETAILED DESCRIPTION--.

Please replace paragraph [0027] with the following rewritten paragraph:

[0027] Figure 1 shows a microscope according to the invention, which is configured as a confocal scanning microscope, having a microscope objective 1 with an optical fiber 3. This optical fiber 3 has an outcoupling end 5 arranged inside the microscope objective 1, namely, in a Fourier plane 9 that is conjugate to the focal plane 7 of the microscope objective 1. The scanning microscope has a light source 11 configured as a multiline laser 13. The illumination light 15 generated by the illumination light source 11 is deflected by a main beam splitter 17 to a beam deflector 19 that comprises a gimbal-mounted scanning mirror 21. In order to scan the specimen, the beam deflector 19 guides the illumination light through the scanning optical system 23, the tube optical system 25 and through the beam splitter 27 as well as through the microscope objective 1 or through the specimen 29 that has been placed on a specimen slide 31. The detection light 33 coming from the specimen 29 travels along the same light path, namely, through the microscope objective 1, through the beam splitter 27, the tube optical system 25 as well as through the scanning optical system 23, returning to the beam deflector and to the main beam splitter 17, then it passes through the latter and through the subsequent detection pinhole diaphragm 35, finally reaching the detector 37 that is configured as a multiband detector ~~35~~. In order to attain an evanescent specimen illumination (TIRF illumination), the illumination light 15 is deflected by the beam deflector 19 through the scanning optical system 23 onto the incoupling end 39 of the optical fiber 3. The incoupling end 39 is in a plane 41 that corresponds to the focal plane 7 of the microscope objective 1, namely, an intermediate image plane 43. The illumination light 15 that is coupled into the optical fiber 3 runs through the edge region of the microscope objective 1 and exits from the front lens 45 at an oblique angle relative to the optical axis of the microscope objective 1. This angle can be adjusted by changing the distance of the exit end 5 from the optical axis 47 of the microscope objective 1. The microscope objective 1 is optically coupled to the cover glass 31 via an immersion medium 49. In order to generate an image of the evanescently illuminated specimen 29, a camera 51 is on hand that receives the

additional detection light 53 that comes from the specimen, passes through the microscope objective and is deflected by the beam splitter 27 to the camera 51.

On page 9, please delete the heading "CLAIMS" and insert the heading --WHAT IS CLAIMED IS:--.